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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/516,438

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EXAMINER

KURTZ, BENJAMIN M

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1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/516,438	Applicant(s) JUMA, KASSIM	
	Examiner BENJAMIN KURTZ	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-26 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-26 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 12-26 are pending, claims 1-11, 27 and 28 are canceled and claims 12 and 22 are currently amended.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claim 29 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 29 recites the precursor is fired from 500-2000 deg. C. The specification as originally filed only provides support for the precursor being fired from 500-1000 deg. C.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daussan et al. US 5 690 161 in view of Morris et al. US 5 785 851 and Jones et al. US 5 520 823.

Regarding claims 12 and 20, Daussan teaches a filter device (1b) comprising a protruding frame (11) joining a plurality of sieve plates (2a), the protruding frame and sieve plates defining a reservoir chamber (6) (fig. 3). Daussan does not teach a bonded network of graphitized carbon or each plate including a corrugated surface.

Jones teaches a filter made of a ceramic material comprising fibers and a carbon bonded network of graphitized carbon, the graphitized carbon constituting the bonded network being present in an amount up to 15% by weight and a ceramic raw material (col. 2, lines 9-15, 32-34, col. 3, lines 13-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the graphitized carbon network of Jones because the material does not pick up moisture from the atmosphere and has superior strength at ambient and elevated temperatures than prior art filters (col. 4, lines 13-23).

Morris teaches a filter device with a plate including a corrugated surface (fig. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use corrugation because the inlet surface has a large contact area which significantly increases the filtration capacity of the filter and the flow rate of the fluid passing therethrough (col. 1, lines 45-55). 'For molten steel filtration' is intended use.

The claims are product by process claims; however, they do not overcome the product of the currently cited references. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 227 USDQ 964 (1985).

Regarding claims 13 and 14, Morris teaches the corrugated surface but does not teach a specific dimension of the corrugation. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a suitable corrugation within the claimed range to optimize the filter, absent a showing of unexpected results by using the claimed range.

Regarding claims 15-19, Daussan further teaches each sieve plate defines a plurality of through holes (3) and the through holes of a first plate are spaced laterally from the through holes of a second plate (fig. 3); the through holes comprise a circular shape (fig. 2); and the sieve plates include substantially an identical geometry (fig. 3). Daussan teaches the effectiveness of any filter depends essentially on the diameter of the holes and the number of plates (col. 2, line 66 – col. 3, line 6), and if the diameter of the holes is less than 1mm filtration takes a long time and clogs easily. It would have been obvious to one of ordinary skill in the art to optimize the range of hole sizes in, view of the teachings of Daussan, to the claimed ranges as they are greater than 1 mm and to filter out the desired sized particles.

3. Claims 22-26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones '823 in view of Daussan '161 and Morris '851.

Regarding claims 22 and 29, Jones teaches a method for producing a filter device made of a ceramic material comprising fibers and a carbon bonded network of graphitized carbon constituting the bonded network being present in an amount up to 15% by weight of the filter, the method comprising: pressing a semi-damp mixture comprising ceramic powder and a graphitizable bonding precursor and fibers to obtain a sieve plate having a disk shape, and firing the assembly in a non-oxidizing atmosphere to a temperature up to 1000 deg. C to obtain the carbon bonded network (col. 2, lines 10-27, 32-34, col. 3, lines 13-25). Jones teaches the advantages of using a non-oxidizing atmosphere (col. 3, lines 23-26 and lines 56-61). Jones does not teach the configuration of the plates.

Daussan teaches a filtering device comprising a protruding frame joining a plurality of sieve plates, the protruding frame and sieve plates defining a reservoir chamber with the plates joined by a binder (fig. 3, col. 4, line 66 – col. 5, line 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use make the protruding frame of Daussan because they allow metal to be exposed to treatment material prior to being introduced into a mold (col. 1, line 60 – col. 2, line 2).

Morris teaches a filter device with a plate including a corrugated surface (fig. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make a corrugation because the inlet surface has a large contact area which significantly increases the filtration capacity of the filter and the flow rate of the fluid passing therethrough (col. 1, lines 45-55).

Regarding claim 23, Daussan teaches a binder but does not teach the binder being ceramic or carbon. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the same components that are in the filter and because ceramic and carbon are durable under the operating conditions of the filter.

Regarding claim 25, Jones further teaches the firing occurs between 600-700 deg. C (col. 3, lines 60-61).

Regarding claim 26, the specification defines roughening the surface as 'pressing directly the geometry providing a corrugation or height difference between the peaks and troughs'. Morris teaches a corrugated surface with height difference between peaks and troughs and is therefore deemed to teach the claimed limitation.

Regarding claim 24, Jones teaches the advantages of using a non-oxidizing atmosphere for the step of firing the assembly (col. 3, lines 23-26 and lines 56-61). Jones does not teach a reducing atmosphere. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a reducing atmosphere as it is a non-oxidizing atmosphere and will not adversely affect the firing process.

4. Claims 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daussan '161 in view of Morris '851 and Bell et al. US 2007/0090047.

Daussan teaches a filter device (1b) comprising a protruding frame (11) joining a plurality of sieve plates (2a), the protruding frame and sieve plates defining a reservoir chamber (6) (fig. 3). Daussan does not teach a bonded network of graphitized carbon or each plate including a corrugated surface.

Bell teaches a filter device made of a ceramic material comprising fibers and a carbon bonded network of graphitized carbon fired in a non-oxidizing atmosphere at a temperature of less than 1000 degrees C, the graphitized carbon constituting the bonded network being present in an amount up to 15% by weight. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the graphitizable carbon network filter material of Bell because the filter can be made with lower density and lower thermal mass so the filter abstracts less heat from the metal during pouring (paragraph 37, 39, 43, 88).

Morris teaches a filter device with a plate including a corrugated surface (fig. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use corrugation because the inlet surface has a large contact area which significantly increases the filtration capacity of the filter and the flow rate of the fluid passing therethrough (col. 1, lines 45-55). 'For molten steel filtration' is intended use.

The claims are product by process claims; however, they do not overcome the product of the currently cited references. "[E]ven though product-by-process claims are

limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 227 USDQ 964 (1985).

Regarding claims 13 and 14, Morris teaches the corrugated surface but does not teach a specific dimension of the corrugation. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a suitable corrugation within the claimed range to optimize the filter, absent a showing of unexpected results by using the claimed range.

Regarding claims 15-19, Daussan further teaches each sieve plate defines a plurality of through holes (3) and the through holes of a first plate are spaced laterally from the through holes of a second plate (fig. 3); the through holes comprise a circular shape (fig. 2); and the sieve plates include substantially an identical geometry (fig. 3). Daussan teaches the effectiveness of any filter depends essentially on the diameter of the holes and the number of plates (col. 2, line 66 - col. 3, line 6), and if the diameter of the holes is less than 1mm filtration takes a long time and clogs easily. It would have been obvious to one of ordinary skill in the art to optimize the range of hole sizes in, view of the teachings of Daussan, to the claimed ranges as they are greater than 1mm and to filter out the desired sized particles.

5. Claims 22-26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bell '047 in view of Daussan '161 and Morris '851.

Claims 22 and 29, Bell teaches a method for producing a filter device made of a ceramic material comprising fibers and a carbon bonded network of graphitized carbon, the graphitized carbon constituting the bonded network being present in an amount up to 15% by weight, the method comprising: pressing a semi-damp mixture comprising ceramic powder and a graphitizable bonding precursor and fibers to obtain a sieve plate having a disk shape, and firing the assembly in a non-oxidizing atmosphere to a temperature less than 1000 deg. C to obtain the carbon bonded network (paragraph 37, 39, 43, 72-78). Bell does not teach the configuration of the plates.

Daussan teaches a filtering device comprising a protruding frame joining a plurality of sieve plates, the protruding frame and sieve plates defining a reservoir chamber with the plates joined by a binder (fig. 3, col. 4, line 66 - col. 5, line 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use make the protruding frame of Daussan because they allow metal to be exposed to treatment material prior to being introduced into a mold (col. 1, line 60 - col. 2, line 2).

Morris teaches a filter device with a plate including a corrugated surface (fig. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make a corrugation because the inlet surface has a large contact area which significantly increases the filtration capacity of the filter and the flow rate of the fluid passing therethrough (col. 1, lines 45-55).

Regarding claim 23, Daussan teaches a binder but does not teach the binder being ceramic or carbon. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the same components that are in the filter and because ceramic and carbon are durable under the operating conditions of the filter.

Regarding claim 25, Bell further teaches the firing occurs between 600-700 deg. C (paragraph 78).

Regarding claim 26, the specification defines roughening the surface as 'pressing directly the geometry providing a corrugation or height difference between the peaks and troughs'. Morris teaches a corrugated surface with height difference between peaks and troughs and is therefore deemed to teach the claimed limitation.

Response to Arguments

6. Applicant's arguments filed 8/4/09 have been fully considered but they are not persuasive.

Applicant argues that Jones does not teach the carbon bonded network being obtained by preparing a graphitizable carbon bonding precursor. Jones teaches a graphitizable a precursor in column 3, lines 13-16. Amorphous carbon, such as carbon black is a graphitizable carbon bonding precursor. The precursor is mixed with the ceramic powder and at a temperature not exceeding 850Deg. C. Jones teaches that it is advantageous to avoid oxidation conditions when firing the product. At the very least Jones teaches that a non-oxidizing atmosphere is desirable and the teaching of Jones would lead one of ordinary skill in the art to fire the product in a non-oxidizing

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atmosphere. Even if some oxidation does occur Jones indicates that not all of the amorphous carbon is oxidized, therefore there is some graphitized carbon present in the end product. Jones teaches the use of the same materials and the same process of making the final product as that claimed thereby reasonably inherently resulting in substantially the same final carbon bonded network as claimed. Applicant states the in declaration filed 8/4/09 that, "it is obvious to me, that at reaction conditions as described by Jones, such amorphous carbon will not form a carbon bonded network or graphitized carbon as present in the filter described in the application and claimed in claim 12."

While Jones does teach a matrix of borosilicate glass applicant has not sufficiently shown that the materials of Jones would not form a graphitized carbon bonded network when made by the process of Jones for the reasons stated above.

Applicant argues that the Bell '047 reference is not a 102(e) reference because the relevant citation is not expressly supported by the '846 PCT reference. At least paragraphs 39 and 43 teach the claimed range. These paragraphs correspond to page 4, lines 16-21 and page 9, lines 21-29. Bell teaches a minimum 25 wt% of binder (based on particulate refractory material to binder) from paragraph 39 and Bell teaches the binder containing 0-20 wt% (based on total binder) of mesophase from paragraph 46. As little as 25 wt% of the product is binder and 20 wt% of that 25 % is mesophase. Accordingly the product has ~5 wt% mesophase. Applicant states in the declaration that, "...mesophase is not equivalent to graphitizable carbon bonding precursor in the sense of the filter claimed in claim 12. The term "graphitizable carbon bonding precursor" is comparable to the term "binder" as used by Bell." This assertion is

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contrary to the teachings of Bell. Bell states in paragraph 41, "...a solid mesophase or 'semicoke' is formed. This is the bonding phase, i.e. carbon bond in the refractory system." Bell also states in paragraph 46, "The semicoke is preferably formed by heating coal tar or pitches, petroleum tar or pitches or synthetic aromatic polymer to cause the formation of at least some so-called "mesophase". The semi-liquid mesophase is then converted on firing to form the carbon matrix of semicoke." From the teaching of Bell the mesophase is what makes the carbon matrix when the product is fired, therefore the mesophase is comparable to the term "graphitizable carbon bonding precursor" as stated in the claims.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN KURTZ whose telephone number is (571)272-8211. The examiner can normally be reached on Monday through Friday 8:00am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Benjamin Kurtz
Examiner
Art Unit 1797

/Krishnan S Menon/
Primary Examiner, Art Unit 1797